6. (Amended) The device according to claim 1, further characterized in that the substances to be exposed are arranged on a separate support.

7. (Amended) The device according to claim 1, further characterized in that the substances to be exposed are arranged on a separate support, whereby this support is a DNA chip, a PNA chip or a peptide chip.

8. (Amended) The device according to claim 1, further characterized in that the device additionally comprises at least one detector.

11. (Amended) The device according to claim 1, further characterized in that a dynamic mask is provided for the control of the individual optical fibers.

12. (Amended) The device according to claim 1, further characterized in that a set of static masks is provided for the control of the individual optical fibers.

13. (Amended) The device according to claim 1, further characterized in that the light source emits a spectrum of wavelengths that bring about the deprotecting of nucleotides, nucleotide analogs and peptide nucleic acid building blocks for the elongation of the chain and for the construction of oligomers, and that between this light source and the substrate is arranged a bundle of optical fibers, to which light can be selectively coupled each time by targeted control, and that the solid phase on which the oligomer synthesis occurs is positioned precisely and rigidly behind the bundle of optical fibers, and that the solid phase on which oligomer synthesis occurs is arranged in a chamber in which the solutions and/or reagents necessary for the DNA or PNA synthesis can be introduced onto this solid phase by other devices.

19. (Amended) The method according to claim 16, further characterized in that a device for the photolithographic exposure of biological substances is used for conducting the method, said